UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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COAL CREEK SUPERFUND SITE

CHEHALIS, WASHINGTON

FIVE YEAR REVIEW REPORT

JANUARY 2000

I. INTRODUCTION

A. PURPOSE

Region 10 of the Environmental Protection Agency (EPA) conducted a Five-Year Review and prepared this report consistent with the requirements of Section 121 (c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended and Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP). A five year review was conducted for the Coal Creek Superfund site to ensure that the remedial action remains protective of public health and the environment and is functioning as designed. This review is a type I review which is applicable to a site at which the response action has been completed. This site is not on the National Priorities List, but is subject to review as a matter of Region 10 policy because the remedy was selected pursuant to Section 121 of CERCLA.

B. SITE CHARACTERISTICS AND HISTORY

The Coal Creek Site, consisting of approximately eight acres, is located at the head of an alluvial valley approximately one mile northeast of Chehalis, Washington. The site address is 346 Coal Creek Road, Chehalis, Washington . The site is currently owned by Lewis County Public Utility District (PUD) and is bounded by Coal Creek to the south and west, by Coal Creek Road to the east, and land owned by Lewis County PUD to the north. The site is located in a rural, residential area and has been owned primarily by electric utilities since the early 1900s. Past operations included a coal fired steam generation plant in the 1930s and 40s and a succession of transformer scrapping/repair businesses from 1948 to 1983. In the conduct of their operations at the site, these owners and operators engaged in activities involving hazardous substances including, but not limited to polychlorinated biphenyls and heavy metals. As a result of spills or intentional disposal, these substances were released to the environment. Elevated concentrations of these contaminants were detected in soils, sediments, ground water and surface water. Pathways of contamination included surface water runoff, groundwater discharging from the former fill mound, sediment migration down a former drainage ditch which connected the fill mound with Coal Creek, and emissions in the form of volatile gases and fugitive dusts.

In 1983 and 1984, the Potentially Responsible Parties took necessary actions to stabilize the site. These response actions included covering portions of the former fill mound with plastic to control air emissions and prevent rainfall from percolating through contaminated soils, installation of plywood dams in the drainage ditch to retard migration of contaminated sediments, installation of monitoring wells to assess the extent of contamination in the groundwater, and erection of a perimeter fence to secure the site.

II. REMEDIAL OBJECTIVES

A. RI/FS

On February 19, 1988, a Consent Order on the Coal Creek Site was issued by the EPA pursuant to Sections 104 and 122 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). The Consent Order required the Coal Creek Committee representatives to conduct a Remedial Investigation/Feasibility Study (RI/FS) consistent with CERCLA and the National Contingency Plan (NCP). The Coal Creek Committee is composed of approximately 88 PRPs most of which are electric utilities which shipped used electrical equipment to the site for disposal. The work plan, dated October 20, 1987 and incorporated into the order by reference, describes the field activities and analyses deemed necessary to fill the remaining data gaps and complete the RI/FS. The RI/FS was completed by the PRPs on August 15, 1989.

The remedial action objectives developed from these studies were in general to provide a "cost-effective remedial alternative that effectively mitigates and minimizes threats to and provides adequate protection of public health and welfare and the environment." The specific remedial action objectives for the affected media were:

* Prevent human exposure to PCBs and other carcinogenic indicator chemicals that could result in exceeding a cumulative lifetime cancer risk of 10^{-7} to 10^{-4}.

* Prevent human exposure to non-carcinogenic indicator chemicals that could cause the Hazard Index to exceed 1.0.

*Prevent soil with concentrations exceeding the PCB action level from migrating off the former fill mound, from being directly contacted or ingested by humans, from exposure to volatilization or dust generation, or from serving as a medium for vegetable gardening (residential only).

* Prevent groundwater in contact with soil exceeding the PCB action level from migrating out of the fill mound to either surface water or to a deeper aquifer.

* Prevent surface water from contacting soil exceeding the PCB action level.

* Prevent human contact with all identified special features above or below ground surface, and prevent any special features or their contents containing PCBs in excess of the PCB action level from migrating off the mound.

B. RECORD OF DECISION

On October 17, 1990 EPA issued a Record of Decision (ROD), which selected remedial actions chosen in accordance with the requirements of the CERCLA of 1980 as amended by SARA of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Washington State Department of Ecology (WDOE) concurred with the selected remedy.

The major components of the selected remedy were:

Demolition of on-site structures including underground storage tank removal and asbestos removal.

Testing and segregation of contaminated soils into batches containing: 1) greater than 50 ppm PCBs and; 2) greater than 1 ppm and less than 50 ppm PCBs.

On-site incineration of soils containing greater than 50 ppm PCBs.

On-site incineration or off-site treatment of contaminated fluids.

Containment of incinerator ash, soils containing from 1 to 50 ppm PCBs, and soils containing greater than 500 ppm lead in a location above the maximum seasonal groundwater table and beyond the 100 year flood plain. These materials will be contained under an engineered cap.

Perimeter drainage systems to control the runon and runoff of surface waters.

Deed restrictions and/or restrictive covenants to protect the cap and limit land and groundwater use.

Monitor site conditions for a minimum of five years to assess the potential for contaminant migration.

Two Consent Decree requiring implementation of the ROD were filed in federal district court in November 1991 pursuant to Sections 106 and 107 of CERCLA. One Consent Decree covered the major PRPs and the other covered diminimus PRPs.

C. REMEDIAL ACTION ACTIVITIES

The Coal Creek Site Remedial Action took place in two phases.

Phase I included the demolition of a two-story concrete building and foundation; asbestos abatement; demolition of the site drainage system; resulting debris disposal; and UST removal and decontamination. Phase I took place from March 1993 to May 1993.

Phase II included excavation of contaminated soil; thermal treatment of contaminated soil; containment cell construction; debris disposal; and wetlands restoration. Phase II took place from September 1993 to August 1994. Containment cell cap seeding and wetlands seeding took place during October 1994.

Soils containing greater than 1 ppm PCBs or 500 ppm lead were excavated and placed into two stock piles. Soils containing greater than 1ppm and less than 50 ppm PCBs were placed into an containment cell constructed on site and soils containing greater than 50 ppm PCBs were thermally treated on site.

The incinerator was mobilized to the site in the fall of 1993. Approximately 28,000 tons of fill were brought to the site to provide a working surface around the incinerator and concrete pads with pile support were poured to support the incinerator. A total of 9,715 tons of material was processed in the incinerator from January to May of 1994. During this period several operational tests were performed including two mini-burns and a performance burn.

The incinerator was demobilized in May and June 1994. After decontamination, the incinerator equipment was removed from the site on flat bed trucks. The fill material and concrete pads were also removed from the site and the wetland area restored back to its original condition.

A 22,000 cubic yard containment cell was constructed during July and August 1994 to contain the thermally treated soils and the soils containing between 1 and 50 ppm PCBs and greater than 500 ppm lead. A 92,000 square foot synthetic cap was constructed over the cell which was built with several different layers of materials. These layers included a geosynthetic clay liner, 30-mil PVC liner, geonet drainage layer, a 12 ounce geotextile fabric, a 12 inch biotic barrier, a second geotextile layer (16 ounce), and one foot of top soil with a covering of selected rye grasses.

Debris containing greater than 50 ppm PCBs was disposed at Envirosafe in Idaho. Larger pieces of debris containing less than 50 ppm PCBs, that were unsuitable for placement in the on-site cell, were also disposed off site.

In December 1994 CH2M Hill and Roy F. Weston, Inc. prepared a Remedial Action Report signifying successful completion of construction activities. The RA Report was approved by EPA in February 1995. The report documents and discusses the construction activities for the implementation of the RA. The total remediation cost for the site was approximately $10,000,000.

III. COMPLIANCE WITH CLEANUP STANDARDS

Many of the legally applicable or relevant and appropriate federal and state laws and regulations (ARARs) listed in the ROD applied to construction activities that occurred during remedial activities such as testing requirements for treated soils, emissions standards for the incinerator, requirements for removing underground tanks, and for dismantling and disposal of asbestos-containing materials. As remedial action construction has been completed for approximately 5 years and construction was completed in conformance with the ARARs in effect at the time of the ROD, there is no need to review changes that may have been made to these ARARs since the signing of the ROD. This ARARs review will focus on compliance with the cleanup levels established in the ROD and the protectiveness of those cleanup levels.

The cleanup levels established in the ROD for soils that were established are as follows:

Total polychlorinated biphenyls (PCBs)..... 1mg/kg
Total tetrachlorodibenzo(p)dioxin (TCDD)equivalents.....1 ug/kg

Soil sampling conducted during the remedial action indicate that soil cleanup levels have been met. Soils containing greater than 1 ppm and less than 50 ppm PCBs and greater than 500 ppm lead are contained in a lined and capped cell on the site.

The cleanup levels established in the ROD for discharge from the surface water diversion trenches are as follows:

> No hazardous substances in concentrations greater than federal Ambient Water Quality Standards (AWQS) or corresponding state standards which may be more stringent.

The purpose of the surface water diversion trenches is to keep up gradient waters out of the containment cell. The surface water diversion trenches collect surface water runoff and shallow groundwater from the up gradient side of the site and discharge those water below the containment cell. Since these waters are not impacted by contaminants from the site, EPA has not required that the diversion trenches to be sampled. Instead, EPA has required the PRP to sample and analyze up gradient and down gradient ground and

surface waters at the site to determine any impact that the completed remedy may have on down gradient waters. The Operation and Maintenance Manual required that the following chemicals be analyzed and established the following action levels:

Groundwater

Chemical	Action Level
PCB	0.5 ug/L
Chlorobenzenes	5 ug/L
Total Arsenic	50 ug/L
Total Barium	1000 ug/L
Total Cadmium	10 ug/L
Total Chromium	50 ug/L
Total Copper	1000 ug/L
Total Lead	5 ug/L
Total Mercury	2 ug/L
Total Selenium	10 ug/L
Total Silver	50 ug/L

Surface Water

Chemical	Action Level
PCBs	0.014 ug/L
Total Copper	12 ug/L
Total Lead	3.2 ug/L

Ground and surface water sampling was conducted approximately once a year over the past 5 years at the site. One up gradient and 4 down gradient monitoring wells as well as one upstream and two downstream locations on Coal Creek were sampled. Groundwater samples were analyzed for PCBs, chlorobenzenes, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, and silver. Surface water samples were analyzed for PCBs, copper, and lead. The sampling results indicate compliance with all the above action levels and show no significant difference between up gradient and down gradient water quality in both ground and surface water. These sampling results indicate that the site cleanup and current containment system is successful and that the site is no longer impacting the environment.

The ROD indicates that the discharge from the surface water diversion trenches will be sampled and compared to the cleanup standards listed above as part of the Five-Year Review. These diversion trenches collect surface and shallow ground water from the up

gradient side of the site and are not expected to be impacted by the site. Considering the source of the discharge from these trenches and the fact that monitoring over the last 5 years did show any impact on water down gradient of the site, EPA does not believe that sampling the discharge from these trenches is necessary for this five year review.

EPA is not aware of any requirements that were promulgated or modified subsequent to the ROD that call into question the protectiveness of the remedy, nor is there any new toxicity or exposure pathway information that call into question the protectiveness of the remedy or the site. The soil cleanup standards selected in the ROD are consistent with the soil cleanup standards currently supported by EPA guidance.

The site is currently vacant and is surrounded by an 8 foot high fence. Institutional controls prohibit any activities that may impact the containment system and prohibit residential use of the site. EPA believes that the cleanup levels established for the site are still appropriate and protective considering the current use of the site.

IV. SITE CONDITIONS

A. PAST INSPECTIONS

EPA conducted a final inspection of the remedial action on November 4, 1994, and provided a certification that the remedial action was completed on May 9, 1995. Consultants for the PRP Steering Committee conducted periodic inspections of the site since the completion of construction and conducted sampling of surface and groundwater on an approximate yearly basis. The inspections and sampling were conducted in accordance with the Operation and Maintenance Plan which was approved by EPA on March 8, 1995. The inspections indicate that the site is stable. Sampling conducted from 1995 through 1998 indicate that action levels for surface and ground waters established in the O & M Plan have been and continue to be achieved. The sampling program included:

Annual groundwater sampling from the on-site monitoring wells
Annual surface water samples from Coal Creek

Groundwater was collected from five on-site monitoring wells - one up gradient and four down gradient. Prior to sampling the wells they were purged until water quality parameters stabilized within 10 percent for three successive measurements. The wells were purged using a peristaltic pump and tubing employing slow purge pumping rates. This procedure was selected as the best method to avoid loss of volatiles, minimize water table drawdown and sample turbidity, and reduce investigation derived wastes (IDW) volume. Samples were analyzed for polychlorinated biphenyls (PCBs), chlorobenzenes, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, and silver.

Analytical results indicate no significant differences between up gradient and down gradient samples.

Surface water samples were obtained from one upstream and two downstream locations on Coal Creek. The samples were obtained using a dipper sampler containing a 500 mL glass beaker from the center of the creek. Samples were analyzed for PCBs, copper, and lead. Analytical results indicate no significant differences between up stream and down stream samples.

All samples were contained and preserved in accordance with prescribed sampling procedures. Duplicate samples were obtained as required and a trip blank was used for each transportation event. The data was reviewed by the analytical laboratory in accordance with the guidelines outlined in the Laboratory Data Functional Guidelines for Evaluating Organic Analyses (EPA 1988) and the Laboratory Data Functional Guidelines for Evaluating Inorganic Analyses (EPA 1988).

The groundwater and surface water data continue to indicate conditions protective of human health and the environment. The analytical concentrations for the contaminants of concern remain well below the site specific action levels.

B. INSTITUTIONAL CONTROLS

In accordance with requirements in the Consent Decree, on March 10, 1992, the owner of the site, Lewis County Public Utility District No. 1, recorded with the Lewis County Auditor restrictive covenants and access requirements binding on any and all persons who acquire interest in the property. The restrictive covenants provide access for the United States, the State, and their authorized representatives for purpose of implementation of the Consent Decree and include the following restrictions on future uses of the property:

1) The property shall not be used for residential or agricultural purpose;

2) Construction, installation, maintenance or use of any wells on the property for human drinking water purposes or for irrigation of feed or food crops is prohibited;

3) Construction activities that would violate the integrity of the containment structure are prohibited; and

4) Maintenance of diversion ditches, flood barriers, and other special features of the remedy shall be maintained.

The purpose of these institutional controls are to help assure that the integrity of the remedial structure will not be violated and that the site will remain protective of human health and the environment in the future. Maintenance of the institutional controls through restrictive covenants upon property conveyance are included in the continuing obligations of the PRPs and are not affected by termination of the Consent Decree.

C. CURRENT INSPECTION

On June 24, 1999, the EPA site manager, Bob Kievit inspected the site with the assistance of the PRP Steering Committee project manager, John Aniello. An 8 foot high chain link fence with a locked gate surrounds the containment cell and surface /groundwater diversion channels. We walked around the outside perimeter of the fence. The fencing appeared to be in good shape. The area outside the fence contained a dense growth of grasses and shrubs. We gained entrance to the site through the locked gate. The landfill cell supported a good growth of grasses with no observable growth of shrubs or trees. No erosion was observable along the slope of the containment cell. No differential settlement was observed on the containment cell. The discharges from the diversion channels appeared to be free of obstructions. No signs of human intrusion onto the site were observed. In summary, no areas of noncompliance were observed.

V. RECOMMENDATIONS

Based on inspections and monitoring conducted by the PRPs consultants since the completion of construction and on EPA inspections, the site appears to be stable and continues to meet cleanup levels. The required institutional controls have been put into effect. Since groundwater and surface water monitoring has consistently meet cleanup levels over the past 5 years, I recommend that sampling is no longer necessary and that the existing groundwater monitoring wells be abandoned in accordance with Washington State Well Construction Act and its implementing regulations - Chapter 173-160 WAC. Wells no longer in use are required to be properly abandoned to prevent conduits for potential groundwater contamination.

VI. STATEMENT OF PROTECTIVENESS

I certify that the remedy selected for this site remains protective of human health and the environment.

VII. NEXT FIVE-YEAR REVIEW

The National Contingency Plan states that: "If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action." Since the cleanup included containment of hazardous substances on-site as part of the remedy and property use restrictions to protect the public and the environment, additional five year reviews are required. The next review will be conducted by November 2004 and will focus on any changes made to land use at the site and an inspection of the cap and water diversion system.

Michelle Hale for

Michael Gearheard, Director
Environmental Cleanup Office

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Date

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Michael Gearheard, Director **Date**
Environmental Cleanup Office

CONCURRENCES						
Initials:						
Name:	Bob Kievit	Dave Croxton	Joan Shirley			
Date:	2/2/00	1/3/00	2/3/2000			